Title: MULTI-SPEED SERIAL INTERFACE FOR MEDIA ACCESS CONTROL AND PHYSICAL LAYER DEVICES
Inventors: Lo, William et al.
Atty. Ref.: MP0290

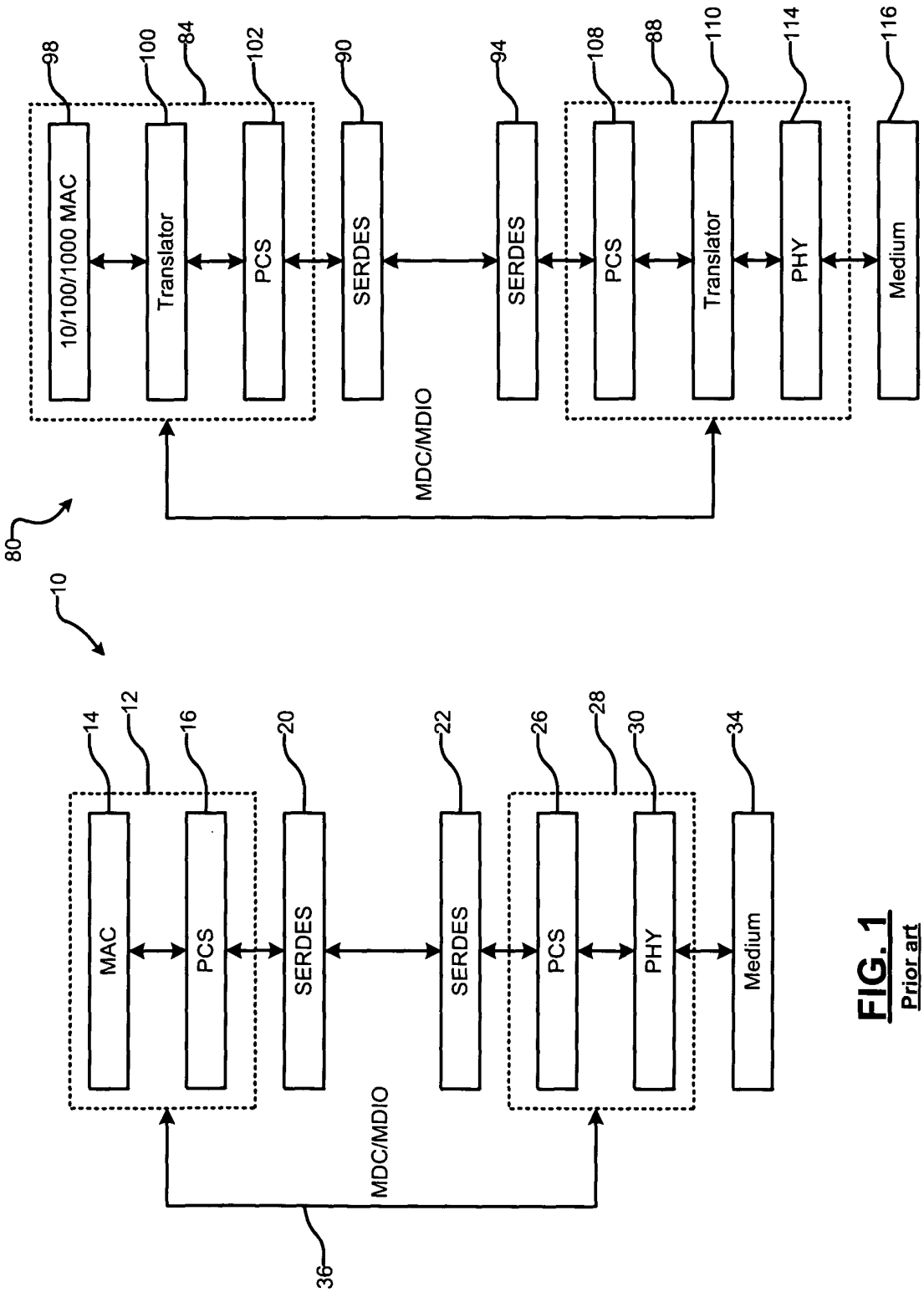


FIG. 4

FIG. 1
Prior art

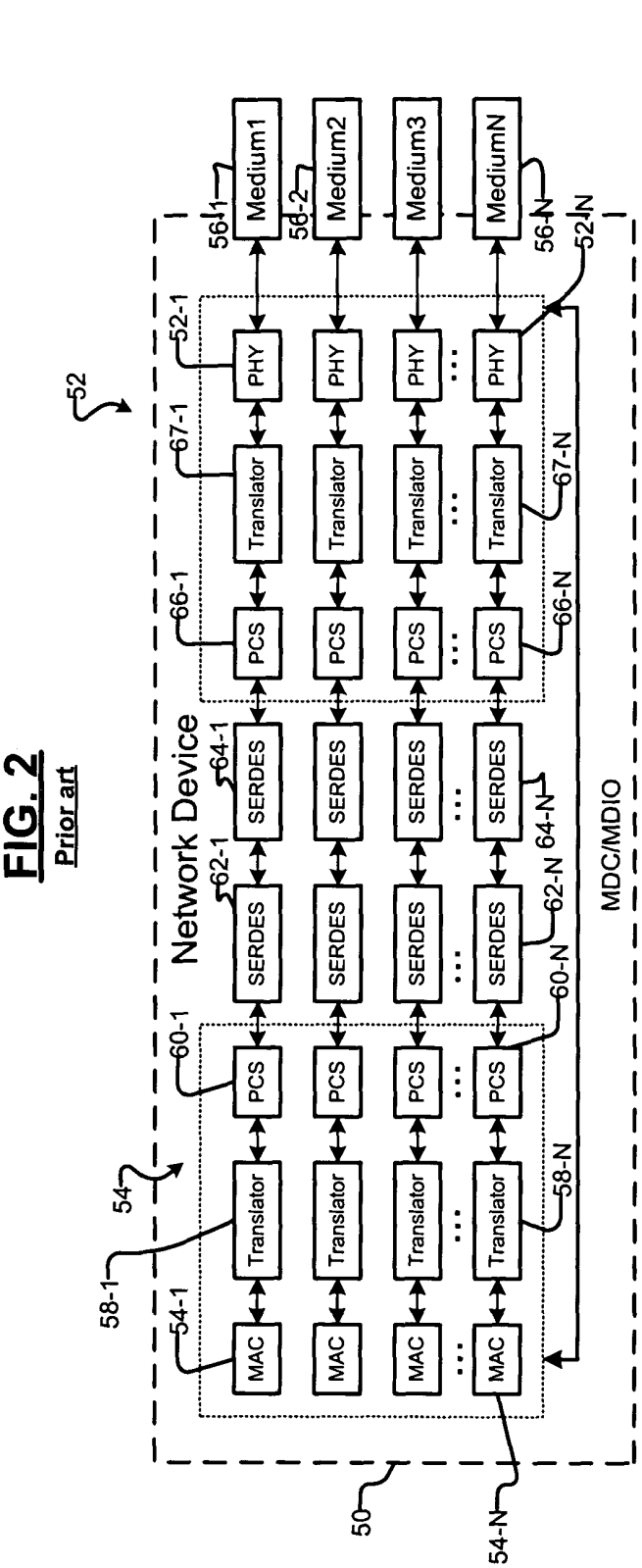


FIG. 2
Prior art

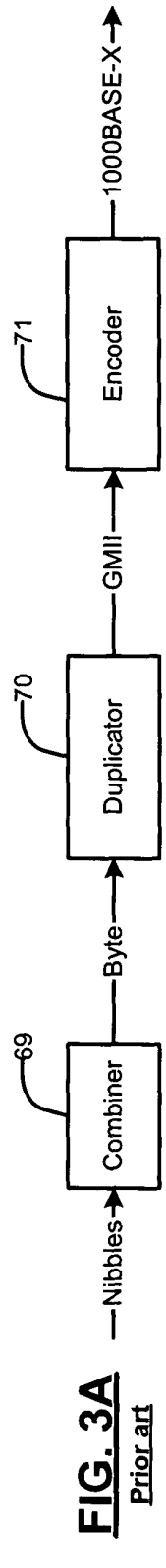


FIG. 3A
Prior art

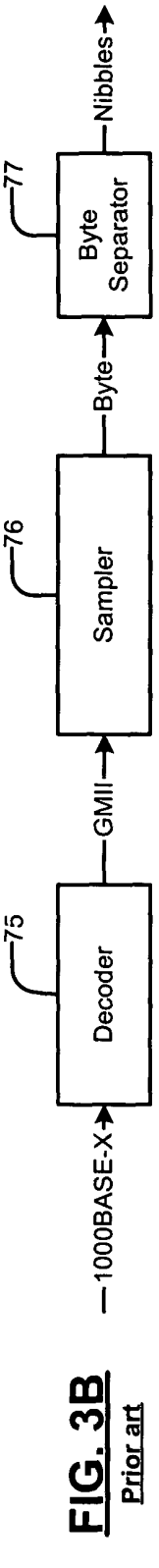


FIG. 3B
Prior art

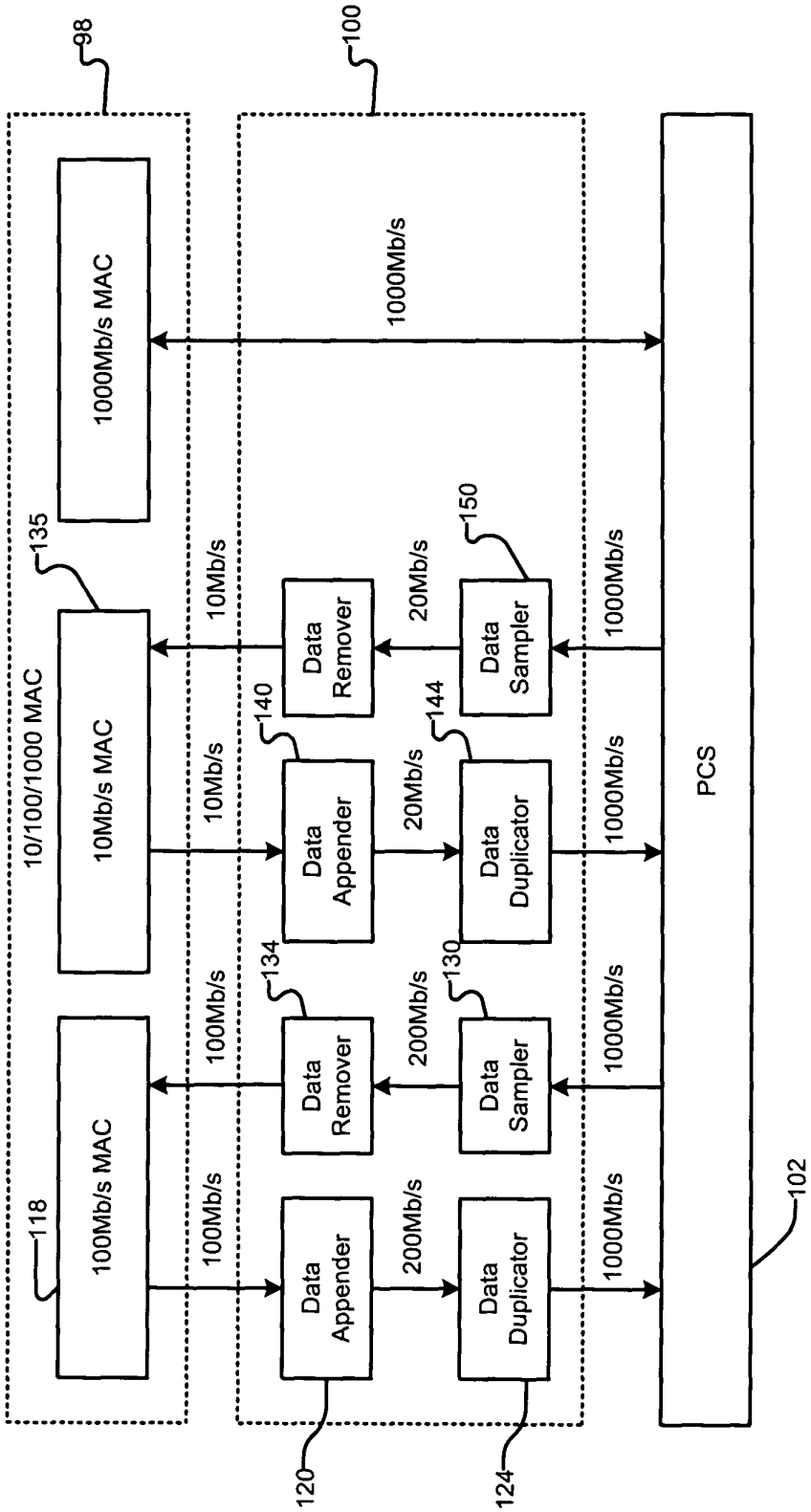

98
100
1000Mb/s MAC
1000Mb/s
10/100/1000 MAC
135
10Mb/s MAC
10Mb/s
Data Remover
140
20Mb/s
Data Sampler
150
Data Appender
144
Data Duplicator
100Mb/s MAC
118
100Mb/s
134
130
200Mb/s
PCS
102
120
124

FIG. 5A

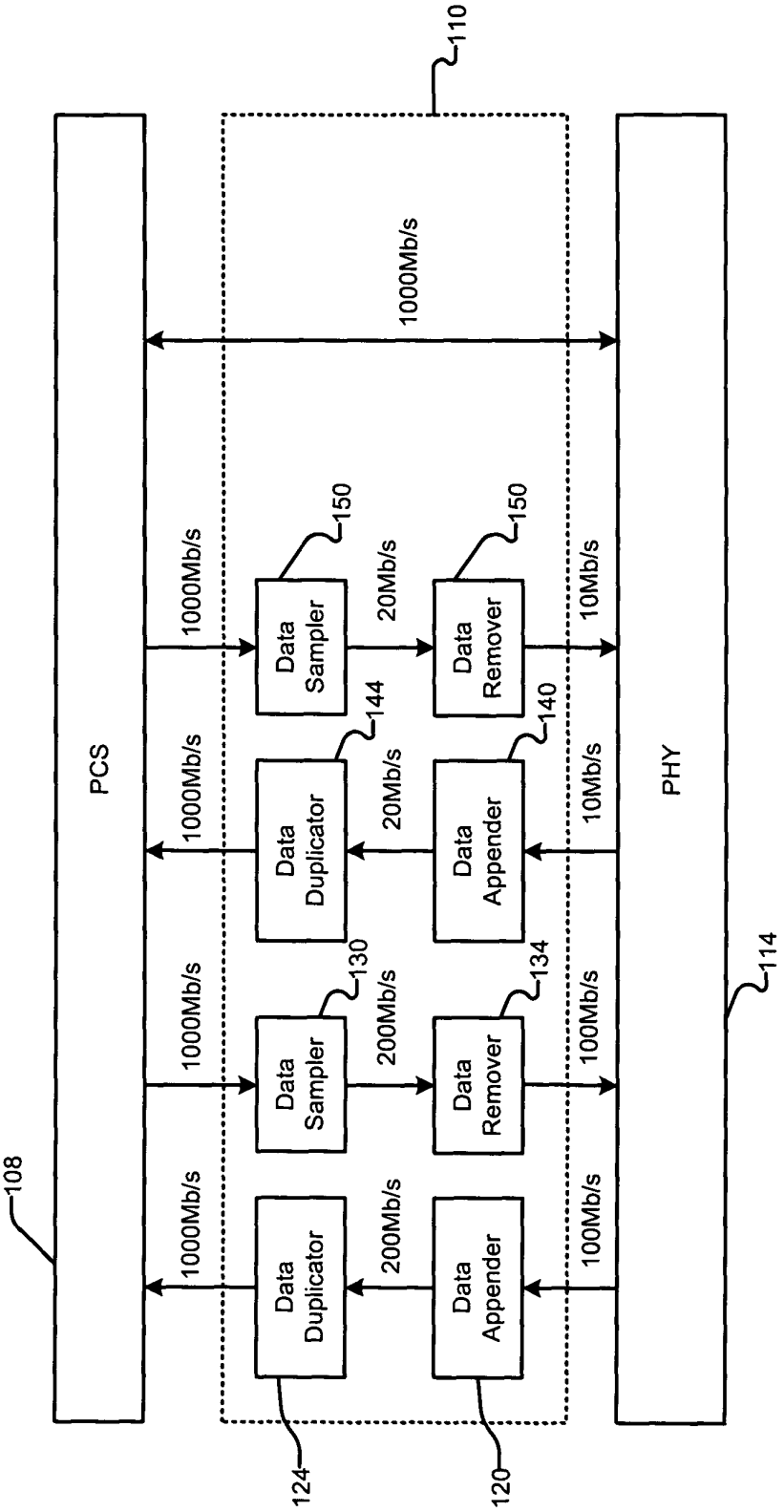
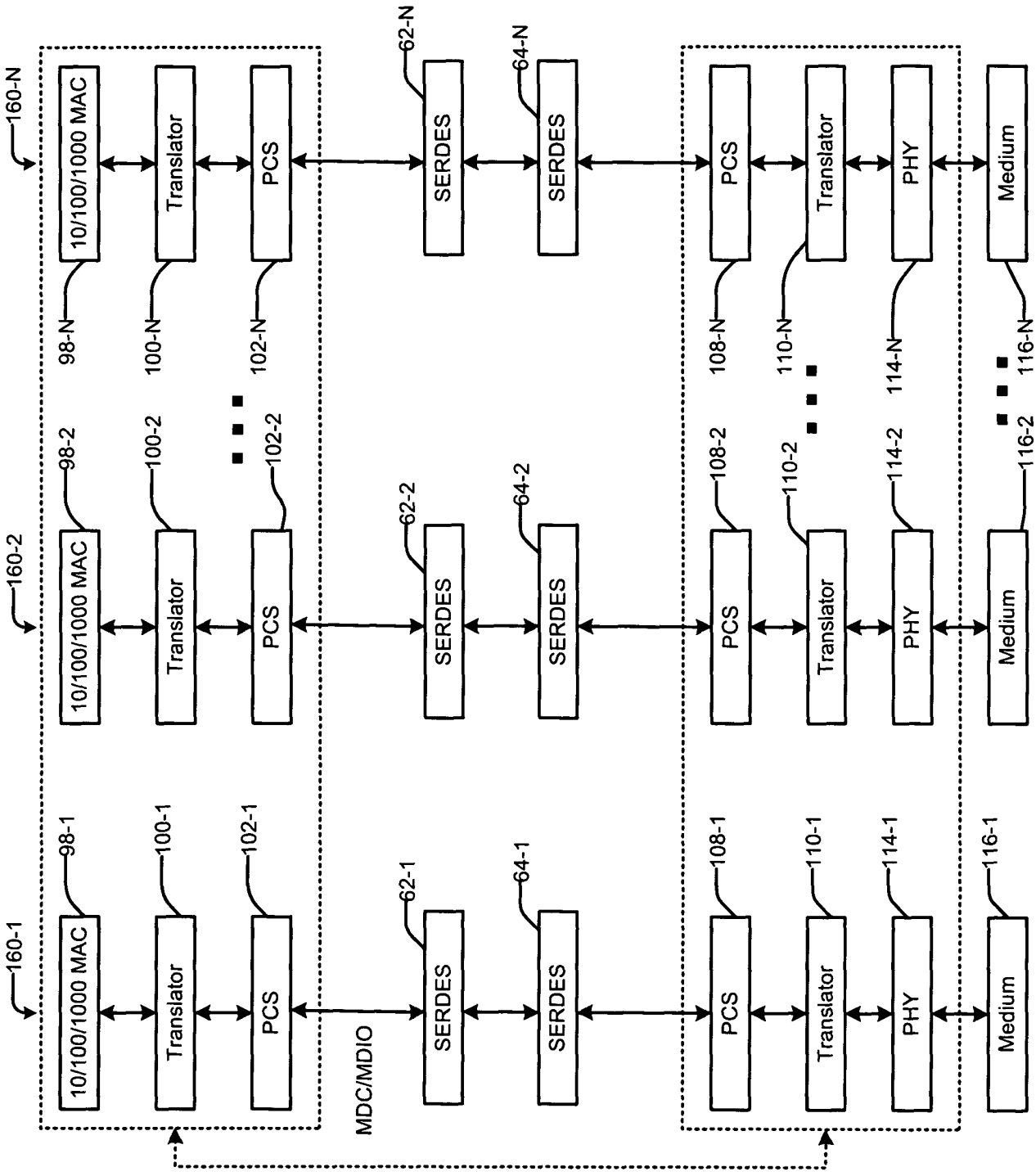

110
1000Mb/s
PCS
PHY
108
114
1000Mb/s
Data Sampler
150
20Mb/s
Data Remover
150
10Mb/s
1000Mb/s
Data Duplicator
144
20Mb/s
Data Appender
140
10Mb/s
1000Mb/s
Data Sampler
130
200Mb/s
Data Remover
134
100Mb/s
1000Mb/s
Data Duplicator
200Mb/s
Data Appender
100Mb/s
124
120

FIG. 5B

FIG. 6


160-N
160-2
160-1
10/100/1000 MAC
Translator
PCS
SERDES
PCS
Translator
PHY
Medium
98-N
100-N
102-N
62-N
64-N
108-N
110-N
114-N
116-N
98-2
100-2
102-2
62-2
64-2
108-2
110-2
114-2
116-2
98-1
100-1
102-1
62-1
64-1
108-1
110-1
114-1
116-1
MDC/MDIO

Upper Nibble	Lower Nibble	First 5 or 50 bytes sent	Next 5 or 50 bytes sent	Comment
Data B	Data A	0101[Data A]	0101[Data B]	Normal packet data.
Idle	Don't Care	Idle	Idle	Drop nibble.
False Carrier	Don't care	Idle	Idle	Cannot transmit a false carrier on SERDES.
Don't Care	False Carrier	Idle	Idle	Cannot transmit a false carrier on SERDES.
Symbol Error	Don't Care	Symbol Error	Symbol Error	The lower nibble is replaced with symbol error.
Non-Idle	Symbol Error	Symbol Error	Symbol Error	The upper nibble is replaced with symbol error.
Non-Idle	Idle	N/A	N/A	This condition is impossible since first non-idle will always be placed in the lower nibble.

FIG. 7

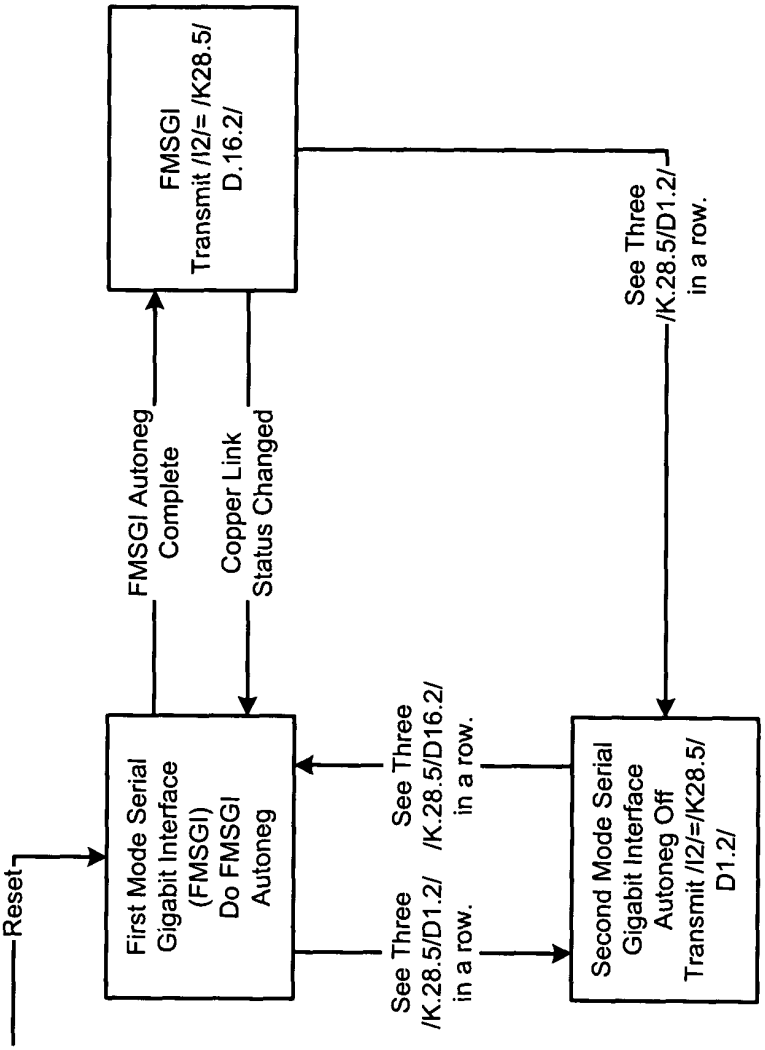

FMSGI
Transmit /I2/= /K28.5/
D.16.2/
See Three
/K.28.5/D1.2/
in a row.
FMSGI Autoneg
Complete
Copper Link
Status Changed
Reset
First Mode Serial
Gigabit Interface
(FMSGI)
Do FMSGI
Autoneg
See Three
/K.28.5/D16.2/
in a row.
See Three
/K.28.5/D1.2/
in a row.
Second Mode Serial
Gigabit Interface
Autoneg Off
Transmit /I2/=/K28.5/
D1.2/

FIG. 8